zero bias – a CQ editorial

BY RICH MOSESON,* W2VU

"Get Your Hands Into That!"

Ham Radio and the Democratization of Technology

"Step away from the technology … you are not smart enough to understand how it works or to try to fix it if it doesn't." This is the unspoken message from the people who build so many of today's technological tools and toys and warn us that there are "no user-serviceable parts inside" or that "opening case will void warranty." To some observers, it is also their bid to control what we do with technology, in much the same way that access to the tools of literacy and education were limited to a chosen few in the days before the invention of the printing press. It is also why ham radio's future is assured for at least another generation. Ham radio, in this scenario, is the 21st century version of movable type. Let me explain…

A few days after Apple introduced its much-ballyhooed iPad digital reader, blogger (and *Make* magazine columnist) Cory Doctorow posted a commentary on boingboing.net, entitled, "Why I won't buy an iPad (and think you shouldn't, either)." Personally, I don't care whether you buy an iPad, and I can't guarantee that I won't eventually end up owning one (after all, I do own and enjoy an iPod). But Doctorow raises some very interesting points in his commentary and while he doesn't specifically mention ham radio, what he says applies to us.

"Most of the really exciting stuff in technology," he writes, "hasn't come from big corporations with enormous budgets, it's come from experimental amateurs."

Writing about the iPad, he says, "clearly there's a lot of thoughtfulness and smarts that went into the design. But there's also a palpable contempt for the owner. I believe, really believe," he continued, "in the stirring words of the 'Maker Manifesto': If you can't open it, you don't own it. Screws not glue."

Doctorow goes on to note that "the original Apple][+ came with schematics for the circuit boards and birthed a generation of hardware and software hackers who upended the world for the better." By contrast, he says, "(t)he way you improve your iPad isn't to figure out how it works and (make) it better. The way you improve the iPad is to buy iApps. Buying an iPad for your kids isn't a means of jump-starting the realization that the world is yours to take apart and reassemble; it's a way of telling your offspring that even changing the batteries is something we have to leave to the professionals."

A Solution…

Well, we've got a solution to this dilemma—it's called ham radio! The spirit of figuring out how it works and making it work better (or do something completely different) is so ingrained in our culture that it has even become part of the FCC rules that govern our operation [§97.1(b) Continuation and extension of the amateur's proven ability to contribute to the advancement of the radio art.]. Experimentation is not only permitted, it is encouraged. Hams are the only FCC licensees who, as a group, are permitted to build and modify their own gear and who are generally exempted from FCC equipment certification requirements.

If you really want to learn how things work, to experiment with designing and building your own circuits, to "play" with technology rather than simply use it, ham radio is one of the few areas in which this is specifically allowed and encouraged, and where you can find a community of like-minded people to encourage, help, and guide you. This is a point that has been made repeatedly by the various military, technological, and scientific leaders whom we've interviewed in these pages over the past few years. If this country is to retain and/or regain its leadership in technological innovation, then we must not only find ways to get young people interested in careers in science and technology, but we must also provide them with a "playground" in which they can tinker, try, fail, and ultimately, succeed.

In the 1970s and '80s, personal computers offered this opportunity, as Doctorow noted. But since computers have become commodities and software has by and large become dominated by a few large companies, opportunities for experimenting in the world of computers have become very limited to non-existent, particularly for the individual operating outside of a structured corporate or academic environment. Ham radio, on the other hand, continues to provide a technological "playground" to those so inclined, as it has for more than a century. More importantly, it helps to keep access to the inner workings of technology more (small-d) democratic. Today, those who control our technology control large parts of our lives. Ham radio assures that at least some of that control remains with individuals.

A Vital Minority

Are we *all* out there on the cutting edge of technology? Certainly not. But—I'm going to reveal a little secret here—we never have been. Since at least the 1950s, old-timers have been complaining that newer hams are turning into a bunch of "appliance operators." With the possible exception of the earliest days of radio, when radio itself was experimental and therefore, everyone involved in it was an experimenter, the majority of hams have been *users* of technology rather than its *developers*. But … and this is an important but … the minority who *have* been technological innovators have done some amazing things and are responsible for laying the groundwork for much of the technology we take for granted today.

This is not something that has happened only in the "good old days" of ham radio's so-called golden age of the 1950s and '60s, when there were about a third as many licensed hams in the U.S. as there are today. Our minority of technological innovators continues to do amazing things. The hotbeds of technical innovation in ham radio today are among the QRPers and ham-hikers, the digital developers such as K1JT, the software-defined radio experimenters in TAPR, the satellite designers in AMSAT, and the microwavers who are constantly pushing the envelope in terms of frequency and distance. For the rest of us, kits and homebrewing are making a comeback. The smell of hot solder is still an integral part of our hobby.

One of the reasons why neither CBs nor cell phones nor e-mail nor the internet have killed off ham radio (as so many had predicted that each one would as the decades passed) is that each of these has become a commodity with "no user-serviceable parts inside." As long as ham radio offers the ability—and the encouragement—to open up the case, make your own repairs and modifications, or to design and build gear from scratch, we will continue to attract the technologically curious, and they will continue to keep ham radio safe for each succeeding future generation. Our challenge is to make sure that each new generation of the technologically curious knows about ham radio and what it offers.

Welcome, N6GA

This issue contains the first column by our new QRP Editor, Cam Hartford, N6GA (p. 72). Cam has big shoes to fill in succeeding Dave Ingram, K4TWJ (SK), but I am very confident that he is up to the task. Please join me in welcoming Cam to our staff by reading and contributing to his column.

73, W2VU

*e-mail: <w2vu@cq-amateur-radio.com>